

LOGSA

GEIA-927, Common Data
Schema for Complex
Systems

GEIA-STD-0007,
Logistics Product Data

19 Sep 07

Mr. James Colson

U.S.
Army
Materiel
Command



NEED TO BE FASTER, MORE AGILE, LESS BUREAUCRATIC - NEED TO FIGHT THIS
EVERYDAY



Outline

- **GEIA-927 Common Data Schema for Complex Systems (June 2007)**
 - Design/Purpose
 - Implementation approach
 - Handbook
- **GEIA-STD-0007, Logistics Product Data (August 2007)**
 - Content
 - GEIA-HB-0007, Logistics Product Data Handbook (August 2007)



GEIA-927 Purpose

- **Facilitate the Exchange of Data Concepts Between Product Data Domains (e.g. Systems Engineering, Product Life Cycle, Mechanical, etc.) for Complex Systems by Harmonizing Disparate Standards into a Single Object Model**
- **Primary Elements**
 - **Entity/Attribute Mapping Between Domain Standards and the GEIA-927 Entity Model**
 - **GEIA-927 Entity Model (lexical and graphical)**



GEIA-927 Version 1.0 Content



- **Standard Based On:**

- ISO 18876 (IIDEAS) Basis for Data Modeling Methodology
- ISO 15926-2 (EPISTLE Core Model (ECM)) Initial Integration

- **Currently Integrates:**

- PAS 20542 - Systems Engineering
- ISO 10303 (STEP) AP212 - Electrotechnical Design and Installation
- ISO 10303 (STEP) AP239 - Product Life Cycle Support
- ISO 10303 (STEP) AP214 - Core Data Model for Automotive Mechanical Design Processes
- Logistics Support Analysis Record Data
- Field Logistics Data (Inventory, Requisition, Maintenance, Usage)
- Logistics Modeling Data (level of repair, cost analysis, post fielding analysis)

- **Functional Views of Model**

- Activity -Physical Architecture
- Common -Product
- Documentation -Property
- Functional Architecture -Requirement
- Logistics (2) -System Architecture
- Effectivity -Product Life Cycle

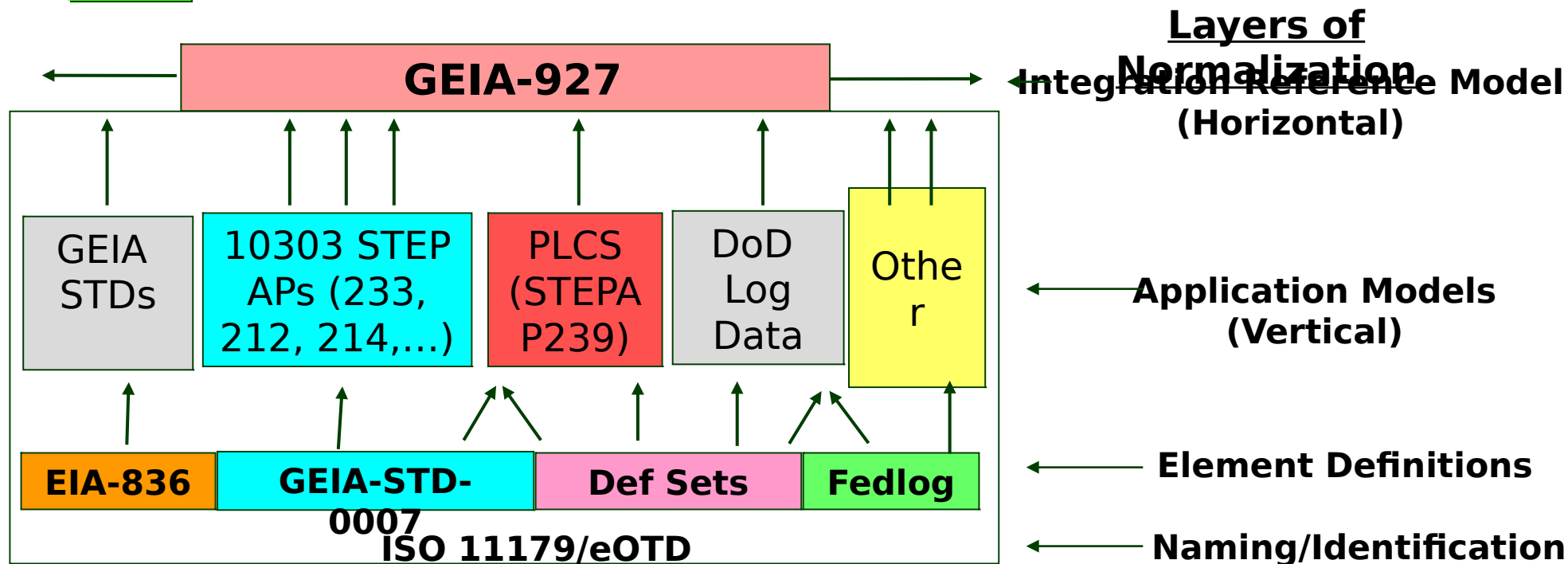
- **Entity/Attribute Model in HTML Format**

- **Entity/Attribute Definitions (~800)**

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Data Standards and Relationships



A Reference Model that Integrates Across Domains, Facilitates the Normalization of Information. Each Functional Domain Must Only Validate with 1 Reference Model and they Become Harmonized with all other Domains

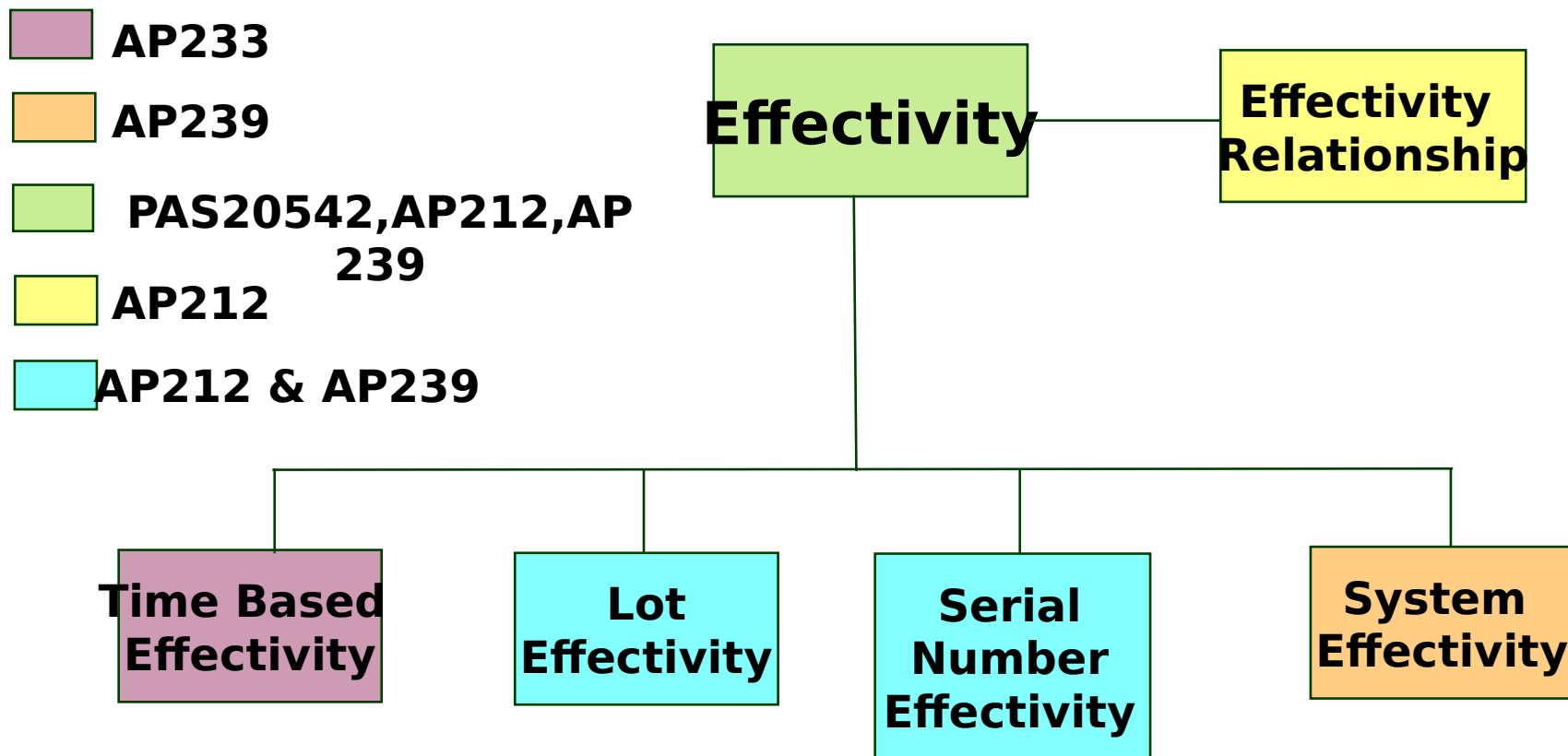
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GEIA-STD-0007, Logistics Product Data



Example - 927 Effectivity View

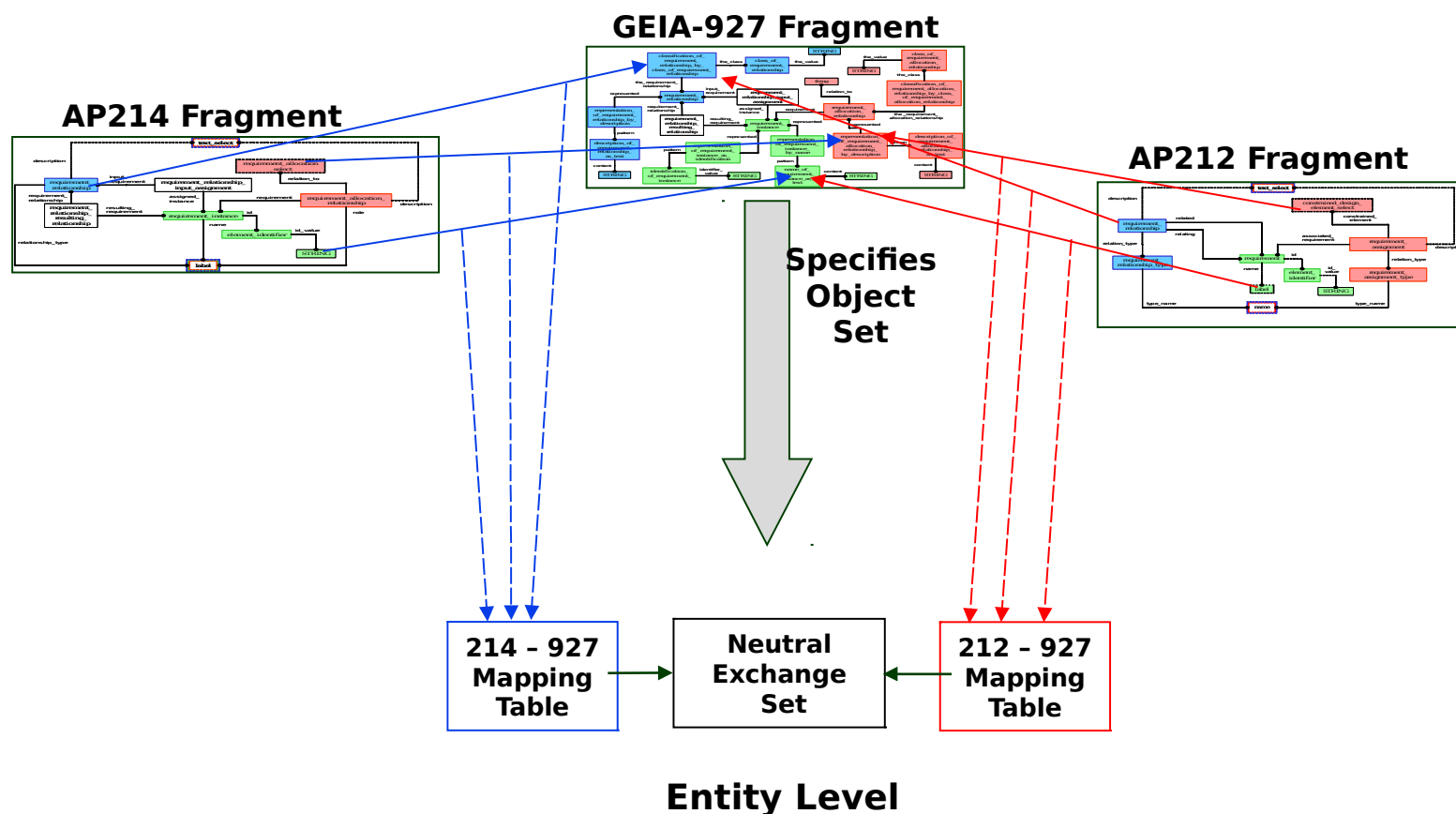
(Simplified)





Implementation Example

GEIA-927 Provides a Roadmap for the Exchange of Entities Between Standards/Domains



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GEIA-HB-927

Handbook and Guide for GEIA-927

- **Content**

- Data Modeling Guidelines (Principles of Modeling)
- Data Model Usage Guide (Explanation of EXPRESS)
- Integration Procedure (GEIA-927 Modeling Procedures)
- Schema Tailoring Guidelines (How to Apply to Specific Application)

To Summarize GEIA-927 Exchange Mechanisms



Standard DEX 1

• Central Exchange

Federated database, must establish exchange agreements with each "Partner".

• Point to Point

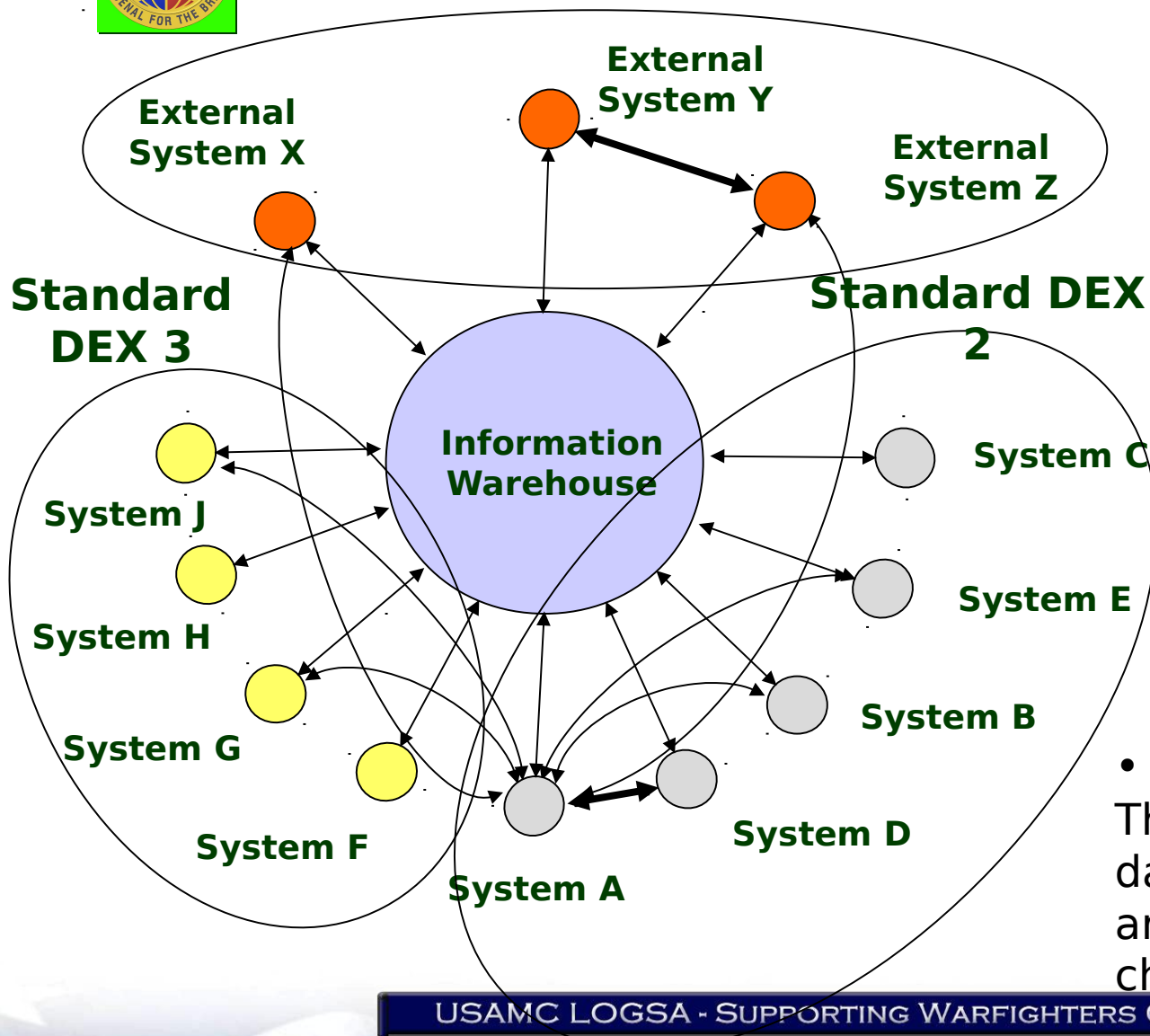
Simple exchange, must establish exchange agreements and Protocols with each Partner

• Closely Tied

Related exchange, typically identical data and structure

• Standards or DEXs

They Provide for exchange of data no matter the architecture or method chosen.

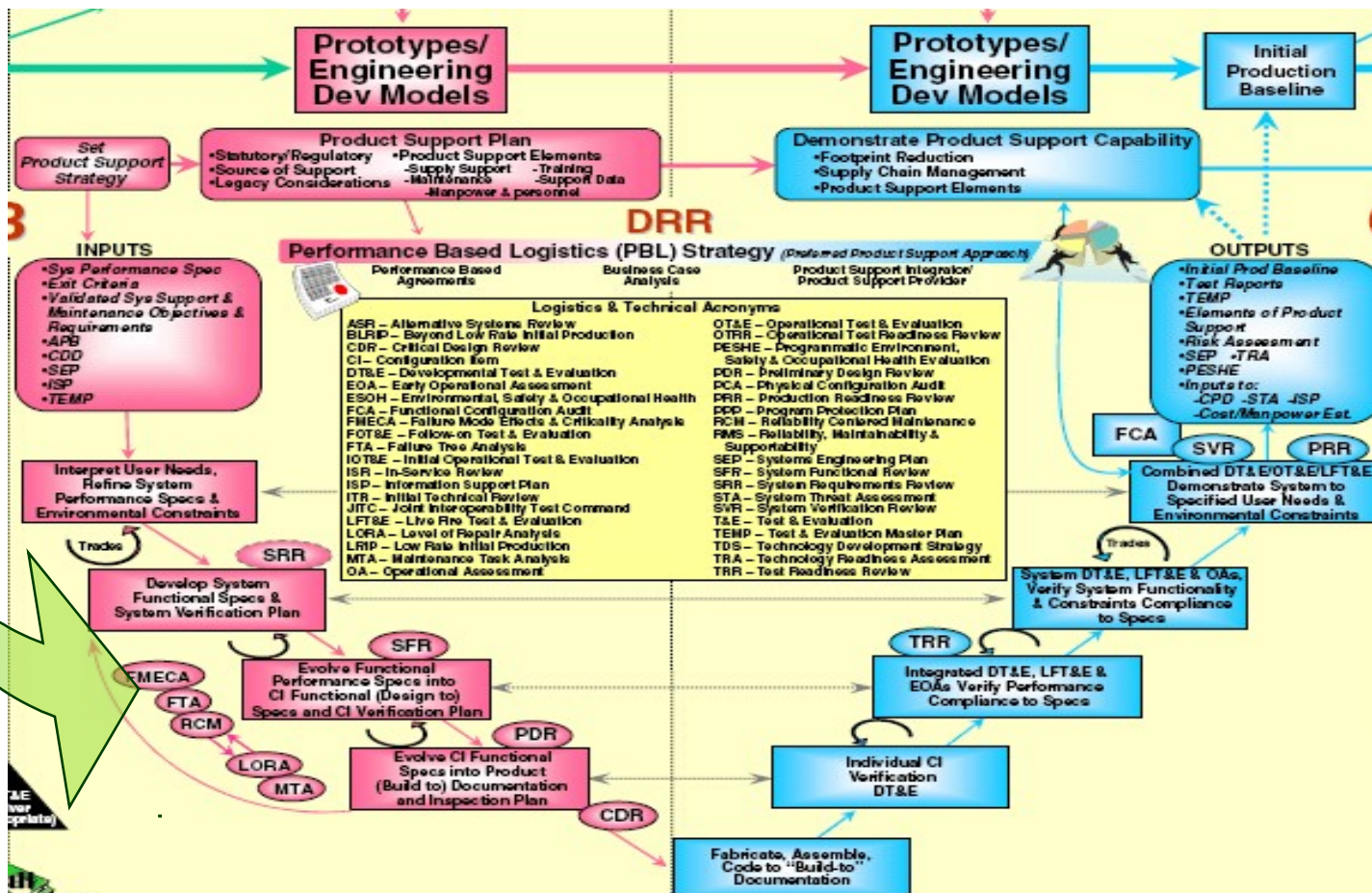


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GEIA-STD-0007

- Define Logistics Product Data Generated During Design of a System, End Item, or Product
- Defines Data Exchange Mechanisms



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GEIA-STD-0007 Outline Content

- **Functional Area Entities/Attributes**
 - Cross Functional Requirements
 - Operations and Maintenance Requirements
 - Reliability Requirements and Analysis
 - Task Analysis
 - Skill and Training
 - Support Equipment
 - Unit Under Test
 - Facility
 - Transportability
 - Provisioning and Cataloging Requirements
- **Validation Requirement - XML Style Sheet**
- **Data Types Dictionary**
- **XML Schema for Logistics Product Data**
 - Update/Change Process
- **XML Schemas for Transaction Sets**
 - Provisioning & Style Sheet
 - Packaging & Style Sheet
 - Task Analysis



Based on MIL-STD-1388-2B/DEF STAN 00 60

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GEIA-HB-0007

Logistics Product Data Handbook

- **Overview of how (e.g. what Analysis) and when Logistics Product Data is Generated During the Development Process (AP239 and U.S DOD Lifecycle Models)**
- **Description of the Logistics Product Data Entities and Attributes (When Required, Sources, Indenture Level Relationships, Primary Use)**
- **Contracting for Logistics Product Data**
- **Appendices**
 - **Attribute Selection Sheet**
 - **Key Field Guidance**
 - » **Logistics Support Analysis Control Number (LCN)**
 - » **Alternate Logistics Support Analysis Control Number (ALCN)**
 - » **Usable on Code (UOC)**
 - **Data Cross Reference List (0007, DEF STAN 00 60, MIL-STD-1388-2B)**





Relationship to ISO 10303, AP239

GEIA-927

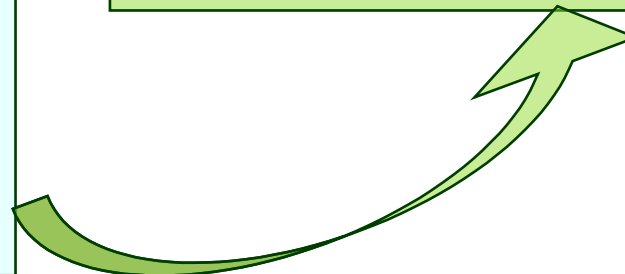
- **Multi-Domain Entity Model**
 - Lexical
 - Graphical
- **Multi-Domain Entity Mapping Tables**
- **Entity/Attribute Dictionary**

GEIA-STD-0007

- **Logistics Product Data Implementation Model**
- **Data Element Dictionary**
- **Data Delivery Reqts via XML Schemas**

ISO 10303, AP239

- **IDEF0 Activity Model - PLCS Process Model**
- **Entity/Attribute Model for PLCS**
 - Lexical
 - Graphical
- **Data Exchange Sets**
 - Capability Modules
 - Entity Templates
 - Reference Data Library



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Summary

- **GEIA-927**
 - Facilitates Exchange of Data Concepts between Product Data Domains
- **GEIA-HB-927**
 - How Standard Was Developed
 - How to Implement Standard
- **GEIA-STD-0007**
 - Re-Establishes Industry/DOD Exchange of LSAR Data
- **GEIA-HB-0007**
 - Establishes Relationship of Analysis to the Data
 - Establishes Relationship of Data to Logistics Products
 - How to Contract for GEIA-STD-0007

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Documents available at: www.geia.org

GEIA-927 & GEIA-HB-927 (June 2007)

GEIA-STD-0007 & GEIA-HB-0007 (August 2007)

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